

CLAIMS

1. Method for casting a part made of a metal alloy such as an aluminum alloy, and, very specifically, for casting a cylinder block for an internal combustion engine, comprising the following steps:

- forming a core having at least one drum intended to form a cylinder in the part and at least one cavity intended to form, in the part, a bearing and/or retaining zone for a working component such as a crankshaft, and at least one cooling unit in close proximity to the cavity,
- positioning the core in a metal mold cavity, and
- feeding the mold lined with its liquid alloy core by gravity.

2. Method according to claim 1, characterized in that the core is formed by rigidly connecting a set of core segments.

3. Method according to claim 2, characterized in that the core is positioned by positioning the individual segments in the mold in reference positions with respect to the mold, then by rigidly connecting the segments to one another.

4. Method according to claim 3, characterized in that the segments are rigidly connected to one another by attaching one or more shoulders to the segments.

5. Method according to one of claims 3 and 4, characterized in that the segments are rigidly connected to one another by bringing them into abutment at the level of bearing surfaces.

6. Method according to claim 5, characterized in that the bearing surfaces are provided at the cooling units belonging to the respective segments.

7. Method according to one of claims 1 to 6, characterized in that the or each cooling unit is integrated to the core during the formation of said core.

5 8. Method according to one of claims 1 to 6, characterized in that the or each cooling unit is inserted into the core after said core has been formed.

9. Method according to one of claims 1 to 8, characterized in that the or each cavity is at least partially defined by a cooling unit.

10 10. Method according to one of claims 1 to 9, characterized in that the or each cooling unit provided in the core is located in an area of the core opposite an area of risers in the mold.

15 11. Method according to one of claims 1 to 10, characterized in that the cooling unit or at least one cooling unit abuts a die shoe of the mold.

12. Mold for casting a part made of a metal alloy such as an aluminum alloy, and very specifically for casting a cylinder block for an internal combustion
20 engine, characterized in that it includes:

- a metal shell defining a mold cavity,
- a core having at least one drum intended to form a cylinder in the part and at least one cavity intended to form, in the part, a bearing and/or retaining zone for a
25 working component such as a crankshaft, and at least one cooling unit in close proximity to the cavity,
- means for positioning the core in the mold cavity, and
- a risering in an upper area of the mold for
30 feeding the liquid alloy by gravity.

13. Mold according to claim 12, characterized in that the core includes a rigid assembly of a set of core segments.

5 14. Mold according to claim 13, characterized in that the means for positioning the core are capable of positioning the individual segments in the mold in reference positions with respect to the mold, and in that means for rigidly connecting the segments to one another are provided.

10 15. Mold according to claim 14, characterized in that the core includes one or more shoulders attached to the segments and capable of rigidly connecting the segments to one another.

15 16. Mold according to one of claims 14 and 15, characterized in that the core segments include mutual bearing surfaces for said segments.

17. Mold according to claim 16, characterized in that the bearing surfaces are provided at the cooling units belonging to the respective segments.

20 18. Mold according to one of claims 12 to 17, characterized in that the or each cooling unit is integrated to the core during the formation of said core.

25 19. Mold according to one of claims 12 to 17, characterized in that the or each cooling unit is inserted into the core after said core has been formed.

20. Method according to one of claims 12 to 19, characterized in that the or each cooling unit provided in the core is located in an area of the core opposite an area of risers in the mold.

30 21. Method according to one of claims 12 to 20, characterized in that one or each cooling unit provided

in the core is in a section of the core opposite a section containing the risers of the mold.

22. Method according to one of claims 12 to 21, characterized in that the cooling unit or at least one
5 cooling unit abuts a die shoe of the mold.

23. Method according to one of claims 12 to 22, characterized in that the mold shell is free of cooling circuits.